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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/074,345	02/12/2002	Halbert Tam	AMAT/6075/CMP/CMP/RKK	5690

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APPLIED MATERIALS, INC.
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SANTA CLARA, CA 95050

EXAMINER	
MCDONALD, SHANTESE L	
ART UNIT	**PAPER NUMBER**
3723	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/074,345	TAM ET AL.	
	Examiner	Art Unit	
	Shantese L. McDonald	3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *17 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-25 and 30-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-25,30-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-25 and 30-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Srinivasan et al. in view of Spikes, Jr.

Srinivasan et al. teaches a method of removing a dielectric disposed on a substrate, having a first dielectric, which is silicon oxide, and a second dielectric material, which is silicon nitride, disposed thereon, (col. 8, lines 46-49), comprising positioning the substrate in proximity with a fixed abrasive polishing pad, (col. 8, lines 21-25), dispensing a polishing composition having at least one organic compound, which comprises an amino acid which comprises glycine in about 0.01 to about 20 wt. % of the polishing composition, (col. 6, lines 27-30), an also praline, (col. 10, line 10), at least one pH adjusting agent, which is potassium hydroxide, deionized water, and combinations thereof, (col. 6, lines 31-45), and the pH of the composition is between 9 and 12, (col. 7, lines 20-34), Srinivasan et al. also teaches that the substrate includes a shallow trench isolation structure, (col. 6, lines 50-53), and chemical mechanical polishing the substrate wherein the at least one organic compound enhances the removal rate of the first dielectric material using the fixed abrasive polishing pad without affecting the removal rate of the second dielectric material, (col. 6, line 60 – col. 7, line

7), and the second removal rate being less than the first removal rate. Srinvasan et al. teaches all the limitations of the claims except for pre-polishing the substrate to planarize the substrate by removing a bulk overfill of the first dielectric material, the polishing system comprising a carousel with at least one substrate head assembly, a controller, a first and second platen and removing the silicon nitride at a rate of between about 0.01 to about 300 A/min, removing the silicon oxide at a rate of between about 50 and 5000 A/min, and the silicon oxide and the silicon nitride being removed at a removal rate ratio of greater than 10:1 and from about 100:1 to about 2000:1 Spikes Jr. et al. teaches a carousel, 40, a controller, 28, first and second platens, (col. 8, lines 58-61), pre-polishing the substrate, (col. 8, lines 36-37). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the polishing method of Srinivasan et al. with a pre-polish step, a carousel, first and second platens and a controller, in order to remove the bulk overfill of dielectric material and more efficiently polish the substrates.

It would have been further obvious to one having ordinary skill in the art at the time the invention was made, to provide the polishing system with a the capability to remove the silicon nitride at a rate of between about 0.01 to about 300 A/min, removing the silicon oxide at a rate of between about 50 and 5000 A/min, and the silicon oxide and the silicon nitride being removed at a removal rate ratio of greater than 10:1 and from about 100:1 to about 2000:1, in order to vary outcome of the polishing dependant on the desired end product.

Response to Arguments

Applicant's arguments filed 10/17/05 have been fully considered but they are not persuasive.

The Applicant argues that there is no motivation or teaching to combine the Srinivasan et al. and the Spikes, Jr. reference. The Examiner disagrees. Both references teach a multiple polishing procedure for removing dielectric material disposed on a substrate, using a fixed abrasive and a polishing solution. The Spikes, Jr. reference teaches that typically CMP is used to planarize a non-uniform polishing surface of a process layer and CMP may be used to reduce surface variations in a pre-polish step, (col. 1, lines 56-67). Therefore the Spikes, Jr. reference was cited and teaches that a pre-polish step during the planarization of a substrate with dielectric polishing layers, and during a polishing procedure with multiple polishing steps, is a known procedure in the art.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shantese L. McDonald whose telephone number is (571) 272-4486. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on (571) 272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S.L.M.
January 3, 2006

Joseph J. Hail, III
Supervisory Patent Examiner
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